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				2129	
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Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)	
Office Action Summary		10/765,461	REHBERG ET AL.	
		Examiner	Art Unit	
	·	Joseph P. Hirl	2129	
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	Responsive to communication(s) filed on <u>04 Au</u> This action is FINAL . 2b) This	<u>ugust 2006</u> . action is non-final.		
'=	Since this application is in condition for allowar		secution as to the merits is	
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Dispositi	ion of Claims			
5)□ 6)⊠ 7)□	Claim(s) 1-11 is/are pending in the application. 4a) Of the above claim(s) is/are withdraw Claim(s) is/are allowed. Claim(s) 1-11 is/are rejected. Claim(s) is/are objected to. Claim(s) are subject to restriction and/or	vn from consideration.		
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9) <u>□</u> 10)⊠	The specification is objected to by the Examiner The drawing(s) filed on <u>26 January 2004</u> is/are: Applicant may not request that any objection to the o Replacement drawing sheet(s) including the correcti The oath or declaration is objected to by the Ex	a)⊠ accepted or b)⊡ objected drawing(s) be held in abeyance. See ion is required if the drawing(s) is obj	e 37 CFR 1.85(a). ected to. See 37 CFR 1.121(d).	
	ınder 35 U.S.C. § 119		Action of 101111 10-102.	
12)	Acknowledgment is made of a claim for foreign All b) Some * c) None of: 1. Certified copies of the priority documents 2. Certified copies of the priority documents 3. Copies of the certified copies of the priorical priorical priorical priorical priorical copies of the attached detailed Office action for a list of	s have been received. s have been received in Application ity documents have been received (PCT Rule 17.2(a)).	on No ed in this National Stage	
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DETAILED ACTION

- 1. This Office Action is in response to an AMENDMENT entered August 4, 2006 for the patent application 10/765,461 filed on January 26, 2004.
- 2. The First Office Action of April 5, 2006 is fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-11 are pending.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-11 are rejected under 35 U.S.C. § 101 for nonstatutory subject matter. The computer system must set forth a practical application of § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and

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concrete, but rather that the final result achieved by the claimed invention is useful, tangible and concrete. If the claim is directed to a practical application of the § 101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S. C. § 101.

The invention must be for a practical application and either:

- 1). specify transforming (physical thing article) or
- 2). have the Final Result (not the steps) achieve or produce a useful (specific, substantial and credible), concrete (substantially repeatable / non unpredictable), and tangible (real world / non abstract) result

(tangibility is the opposite of abstractness).

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

The courts have also held that a claim may not preempt ideas, laws of nature or natural phenomena. The concern over preemption was expressed as early as 1852.

See Le Roy v. Tatham, 55 U.S. (14 How.) 156, 175 (1852) ("A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right."); Funk Bros. Seed Co. v. Kalo Inoculant

Co., 333 U.S. 127, 132, 76 USPQ 280, 282 (1948) (combination of six species of

bacteria held to be nonstatutory subject matter). Accordingly, one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect be a patent on the [idea, law of nature or natural phenomena] itself." Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

The result must be a practical application. Simply stated, claims 1-11 are broad in concept. Specifically, in claims 1-11, the concept of rules applies to the entire domain of rules and thereby preempts the abstraction of rules.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 6. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Masui et al.

Regarding claim 1

(1). A method for processing rules (C 1, L 6-16; ¶ 11. below applies) comprising: accepting a rules base comprising a plurality of rules (figures 1 & 2, also C 1, L 24-37, also C 2, L 50 through C 3, L 20) each rule including a condition that includes

one or more condition element for application of the rule (C 1, L 9-54), at least some of the conditions including multiple condition elements (C 1, L 17 through C 2, L 35 where it states" the conditions being the structural data composed of the names of so-called current data and one or a plurality of pairs of attribute names and attribute values. The conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the network" also C 9, L 42 through C 10, L 44, where it states,, generating a hierarchical graph whose structural elements are LHS and RHS patterns"), and

processing the rules base to form a data structure in a computing system (C 2, L 43 through C 3, L,20; Fig. 1; "rule relation graph"), each rule being associated with a corresponding portion of the data structure, each corresponding portion representing the condition for the rule and including storage locations (C 1, L 24-54, where it states -the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node" ... structure; also C 2, L 43 through C 3, L 20) for holding values of the condition elements of the conditions for said rule (C 5, L 26 through C 6, L 24 where it states " `?x' represents a variable, which takes a same number within a single rule" as well as C 13. Masui's variable could be of various types, including Boolean as an example).

Regarding claim 3

(2). The method of claim 1 further comprising:

processing a plurality of facts, including evaluating condition elements that depend on the facts (C 1, L 9-16; facts are merely something that is known, like the data

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used to determine whether or not conditions are satisfied), and storing results of evaluating the condition elements (C 5, L 26 through C 6, L 24 where it states "?x, represents a variable which takes a same number within a single rule"; also C 13) in the storage locations for holding the values of the condition elements (C 1, L 24-54, where it states "the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node"; also C 2, L 43 through C 3, L 20).

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Regarding claim 4

(3). The method of claim 1 wherein the data structure links each fact to corresponding condition elements that depend on that fact (C 2, L 38 through C 3, L 20; through the use of shortcut arcs and corresponding nodes of the network).

Regarding claim 5

(4). The method of claim 4 further comprising processing a plurality of facts (C.1, L 9-16; facts are merely something that is known, like the data used to determine whether or not conditions are satisfied), including determining applicable rules of the plurality of rules based on the accepted facts by identifying condition elements that depend on the accepted facts using the data structure (C 1, L 9-16; RETE algorithm is an efficient pattern matching algorithm for implementing rule-based ("expert") systems described here and incorporated by reference, which determines applicability of rules).

Regarding claim 6

(5). The method of claim 1 wherein the data structure includes for each of the plurality of rules, data values corresponding to the storage locations for the values of the condition elements (C 3, L 46-59 where it states "An attribute regarding the direction of

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information flow on an arc of the network is provided" This added attribute detailing the direction of information corresponds to applicant's data values for the storage locations of the values of the condition elements), said data values representing a logical combination of condition elements (C 3, L 46-59, also C 4, L 1-57; examiner reads the logical combination of the condition elements as the coupling between consequence and condition part networks; accomplished through this connecting arc).

Regarding claim 7

(6). The method of claim 6 further comprising: identifying applicable ones of the plurality of rules using the data values (C 4, L 1-13) representing the logical combination of the condition elements and values stored in the storage locations for storing values of the condition elements (C 3, L 46-59, also C 4, L 1-57; examiner reads the logical combination of the condition elements as the coupling between consequence and condition part networks, accomplished through this connecting arc).

Regarding claim 8

(7). A system for processing a rules base (C 1; L 6-16; ¶ 11. below applies) comprising:

a data structure formed using a rules base that includes a plurality of rules (C 2, L 38-49; "rule relation graph"), each rule including a condition that includes one or more condition element for application of the rule (C 1, L 9-54), at least some of the conditions including multiple condition elements (C 1, L 17 through C 2, L 35 where it states "the conditions being the structural data composed of the names of so-called current data and one or a plurality of pairs of attribute names and attribute values. The

conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the network" also C 9, L 42 through C 10, L 44, where it states "generating a hierarchical graph whose structural elements are LHS and RHS patterns"), each rule of the rules base being associated with a corresponding portion of the data structure, each corresponding portion representing the condition for the rule and including storage locations (C 1, L 24-54, where it states "the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node"; also C 2, L 43 through C 3, L 20) for holding values of the condition elements of the conditions for said rule (C 5, L 26 through C 6, L 24 where it states "?x represents a variable which takes a same number within a single rule" as well as C 13. Masui's variable could be of various types, including Boolean); and a compiler for processing the rules base (C 1-5, particularly C 1, L 5 through C 3, L 20, where it states "The conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the. network" The compiling section is the construction of the plurality of condition clauses), the rules base comprising a plurality of rules (figures 1 & 2, also C 1, L 24-37, also C 2, L 50 through C 3, L 20), each rule including a condition that includes one or more condition element for application of the rule (C 1, L 9-54), at least some of the conditions including multiple condition elements. (C 1, L 17 through C 2, L 35 where it states "the conditions being the structural data composed of the names of so-called current data and one or a plurality of pairs of attribute names and attribute values. The conditions of current data

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are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses . corresponding to nodes of the network. The following procedure is carried out to determine whether the conditions are satisfied or not...,, also C 9, L 42 through C 10, L 44, where it states "generating a hierarchical graph whose structural elements are LHS and RHS patterns").

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Regarding claim 9

(8). A rules processing system comprising (C 1, L 6-16; ¶ 11. below applies):

a data structure formed using a rules base that includes a plurality of rules (C 2, L 38-49; "rule relation graph"), each rule including a condition that includes one or more condition element for application of the rule (C 1, L 9-38), at least some of the conditions including multiple condition elements (C 1, L 17 through C 2, L 35 where it states "the conditions being the structural data composed of the names of so-called current data and one or a plurality of pairs of attribute names and attribute values. The conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the network. The following procedure is carried out to determine whether the conditions are satisfied or not..., - also C 9, L 42 through C 10, L 44, where it states, generating a hierarchical graph whose structural elements are LHS and RHS patterns"), each rule being associated with a corresponding portion of the data structure, each corresponding portion representing the condition for the rule and including storage locations (C 1, L 24-54, where it states "the current data are supplied to the network to

check if the data satisfy the condition clauses stored in each node") for holding values of the condition elements of the conditions for said rule (C 5, L 26 through C 6; L 24 where it states "'?X represents a variable which takes a same number within a single rule" as well as C 13. Masui's variable could be of various types, including Boolean); and a rules processing engine (Element 4 of Figure 1; since an engine is defined to be something that produces some effect from a given input, an inference program I inference engine and rules processing engine are equivalent) coupled to the data structure (Figure 1; also C 1, L 5-61; the data is connected to the structure through the process that analyzes it) for operation according to the rules base (C 2, L 37 through C 3, L 46).

Regarding claim 10

(9). A data structure embodied in a computer-readable medium for use in rules processing (Figure 1; also C 2, L 38-49; "rule relation graph" this graph is created on a computer; therefore it is embodied in a computer readable medium; ¶ 11. below applies) comprising:

storage locations for values associated with conditions for a plurality of rules in a rules base (C 1, L 24-54, where it states "the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node,; also C 2, L 43 through C 3, L 20), wherein the rules base" comprises a plurality of rules (C 2, L 38-49; "rule relation graph"), each rule including a condition that includes one or more condition element for application of the rule (C 1, L 9-54), at least some of the conditions including multiple condition elements (C 1, L 17 through C 2, L 35 where it states "the conditions being the structural data composed of the names of so-called

current data and one or a plurality of pairs of attribute names and attribute values. The conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the network" also C 9, L 42 through C 10, L 44, where it states "generating a hierarchical graph whose structural elements are LHS and RHS patterns"); wherein each rule is associated with a corresponding structure of the data structure, each corresponding portion representing the condition for the rule and including storage locations (C 1, L 24-54, where it states "the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node"; also C 2, L 43 through C 3, L 20; the nodes of the network form the hierarchy to which each node has condition clauses or rules) for holding values of the condition elements of the conditions for said rule (C 5, L 26 through C 6, L 24 where it states " '?X represents a variable which takes a same number within a single rule" as well as C 13. Masui's variable could be of various types, including Boolean).

Regarding claim 11

(10). Software comprising instructions embodied in a computer-readable medium for causing a computer system to (¶ 11. below applies):

accept a rules base comprising a plurality of rules (figures 1 & 2, also C 1, L 24-37, also C 2, L 50 through C 3, L 20), each rule including a condition that includes one or more condition element for application of the rule (C 1, L 9-54), at least some of the conditions including multiple condition elements(C 1, L 17 through C 2, L 35 where it states "the conditions being the structural data composed of the names of so-called

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current data and one or a plurality of pairs of attribute names and attribute values. The conditions of current data are constructed of a plurality of condition clauses representative of current data attributes, the condition clauses corresponding to nodes of the network" also C 9, L 42 through C 10, L 44, where it states "generating a hierarchical graph whose structural elements are LHS and RHS patterns"); and process the rules base to form a data structure (C 2, L 43 through C 3, L 20; "rule relation graph"), each rule being associated with a corresponding portion of the data structure, the corresponding portion representing the condition for the rule (C 1, L 24-54, where it states "the current data are supplied to the network to check if the data satisfy the condition clauses stored in each node"; also C 2, L 43 through C 3, L 20; the nodes of the network form the hierarchy to which each node has condition clauses or rules); and including storage locations for holding values of the condition elements of the conditions for said rule (C 5, . L 26 through C 6, L 24 where it states " `?X' represents a variable which takes a same number within a single rule" as well as C 13. Masui's variable could be of various types, including Boolean).

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Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masui as applied to claim 1 above, and further in view of Moeller et al. (U.S. Patent 6, 151, 697, herein referred to as Meoller).

Regarding Claim 2

(1). Masui fails to teach wherein the storage locations for holding values of the condition elements comprise bits of a bit vector with each condition element being associated with a different bit position in the bit vector.

Moeller teaches storage locations for holding values of the condition elements comprise bits of a bit vector with each condition element being associated with a different bit position in the bit vector (Moeller: C 7, L 58 through C 7, L 32; also C 2, L 6-63).

Being from the same field of endeavor, processing predetermined relationships and forming relationships from between data within a rule-based representation, it. would have been obvious to one of ordinary skill at the time of applicant's invention to combine Masui's method for fast bi-directional inferencing with Moeller's enhancement of the information content of an input signal through binary pattern recognition to further speed Masui's inferencing engine (Moeller: C 7, L 10-13). This combination also has obvious advantages in reducing storage requirements (Moeller: C 1, L 30-43, also C 11, L 43-50)

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Response to Arguments

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9. Applicant's arguments filed on August 4, 2006 related to Claims 1-11 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Claims 1-11 stand rejected as being directed to non-statutory subject matter.

With regard to claim 1 ("method for processing rules") the office action takes the position that "processing the rules base to form a data structure" does not constitute statutory subject matter because it does not result in a useful, concrete, tangible result. The applicant does not agree that forming such a data structure is purely abstract. Nevertheless, the applicant has amended the claim to recite "processing the rules base to form a data structure in a computing system" to make clear that there is a tangible result of the "processing" step.

With regard to claim 8 ("system for processing rules") and claim 9 ("rules processing system") the office action has not provided a basis for the position that the claims are directed to abstract ideas. The applicant maintains that these claims are directed to statutory subject matter and requests that if the office maintains this rejection, reasons specific to these claims be provided.

With regard to claim 10 ("data structure embodied in a computer-readable medium") and claim 11 ("software comprising instruction embodied in a computer-readable medium") are both directed to functional descriptive material embodied on a computer readable medium and as such are directed to statutory subject matter.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Examiner's response:

As indicated in ¶ 4. above, to satisfy the requirements of 35 USC § 101, the limits of the claim must provide <u>a result that is a practical application</u> and not preempt ideas, laws of nature or natural phenomena. The claim set 1-11 attempts to patent "every substantial application" regarding rule processing.

In reference to Applicant's argument:

The office action asserts that a data structure that includes storage locations for the holding the values of the condition elements is taught by Masui, because Masui checks "if the data satisfy the condition clauses stored in each node." While the applicant disagrees with this assertion, the applicant maintains that Masui fails to disclose or suggest either of two limitations of the amended claim: (1) each rule being associated with a portion of the data structure that represents the condition for the rule, and (2) the corresponding portion including storage locations for holding values of the condition elements. With respect to the first of these limitations, Masai does not disclose or suggest that each rule is associated with a "corresponding portion of the data structure ... representing the condition for the rule." The office action has not identified in what way Masui's "rules relation graph" includes a corresponding portion holding each rule's condition.

With respect to the second limitation, Masui does not disclose a corresponding portion of the data structure associated with each rule that includes storage locations for holding values of the rule's condition elements. If the office action is referring to Masui's statement that the storage of "condition clauses ... in ... node[s]," then even assuming that a node corresponds to the recited "portion of a data structure," an assumption which the applicant does not concede is true, Masui does not disclose or suggest that a node holds the values of a rule's condition elements. For example, in Masui each rule could link to multiple nodes and therefore the nodes that may hold the values of the condition elements are not each associated with a particular rule. Therefore, Masui does not designate to each rule having a corresponding portion of the data structure for the rule's condition.

Examiner's response:

¶ 11. below applies. Regarding issue (1) above, Masui @ c1:24-54 states "The following procedure is carried out to determine whether the conditions are satisfied or not: The current data are supplied to the network to check if the data satisfy the condition clauses stored in each node." ... such is corresponding portion of the data structure ... representing the condition for the rule. Regarding issue (2) above, again Masui @ c1:24-54 applies. A node is part of the network or hierarchy. Again, "The current data are supplied to the network to check if the data satisfy the condition clauses stored in each node." At each node, Masui holds the values of the rule's condition elements ... condition clauses stored in each node.

In reference to Applicant's argument:

Additionally, even if Masui does teach that each rule has a corresponding portion of a data structure and that "the data structure includes . . . storage locations," which the applicant does not concede is true, Masui neither discloses nor suggests that the corresponding portion of the data structure includes the storage locations, because Masui fails to specify where in the data structure the storage locations are

situated. Therefore, Masui neither discloses nor suggests that the storage locations are situated in a portion of the data structure corresponding to a rule.

Examiner's response:

¶ 11. below applies. Masui @ c1:24-54 states "The following procedure is carried out to determine whether the conditions are satisfied or not: "The current data are supplied to the network to check if the data satisfy the condition clauses stored in each node." Data structure is the network made up of nodes ... the storage locations are situated in a portion of the data structure corresponding to a rule.

Examination Considerations

- 8. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.
- 9. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office

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actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

- 10. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.
- 11. Examiner's Opinion: ¶¶ 8-10 are applicable. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

13. Claims 1-11 are rejected.

Correspondence Information

14. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks.

Washington, D. C. 20231;

Hand delivered to:

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(571) 273-8300 (for formal communications intended for entry.

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Joseph P. Hirl Primary Examiner October 4, 2006